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Abstract: Collecting silver artefacts has traditionally been a very popular hobby. Silver is addictive, therefore the number of potential collectors and investors appears to grow each year. Unfortunately, increases in the interest and buying potentials resulted in a number of forgeries manufactured and introduced to the open antique market. The items such as early silver candlesticks dictate a very high price, for many high quality fakes show very good appearances and matching similarities with originals. Such copies are traditionally manufactured by casting using the original items as patterns. Small details and variances in design features, position and shape of hallmarks, including the final surface quality are usual features to distinguish the fakes from the originals. This paper presents results of a study conducted on several silver candlesticks, including two artefacts bearing features of those produced in the mid 18th century, one original Italian candelabrum from Fascist era, and small candlesticks made in the early 20th century. Also, the paper presents some interesting contemporary coins – replicas of many those produced in different countries. The coins were offered for sale by unscrupulous dealers via auctions and e-bays. Finally the main results and findings from this study are discussed from a manufacturing point of view, such as fabrication technology, surface quality and hallmarks, which will help the collectors, dealers and investors to detect and avoid forgeries.

Key words: candlesticks; candelabra; originals; copies; forgeries; silver; manufacturing technology; hallmarks

Recent advances in the commercial exploitation of modern technology based on rapid prototyping, rapid modelling and rapid tooling [1], dealing with three dimensional projection and images, have allowed productions of nominally identical and very convincing imitations of otherwise valuable original items [2]. Consequently, the present investigations were carried out to analyze the practices used in the manufacture of silver artefacts with particular reference to candlesticks and candelabra, and the information from which was used in assessing the authenticity of the “experimental” artefacts from a manufacturing point of view, such as their design features, casting defects and errors, including the shape and positions of hallmarks. The following subsection is presented from previous investigations which were concerned with hallmarking. The experimental details and results are given respectively in sections 1 and 2, dealing with the “experimental” silver artefacts and their macroscopical observations.

1 British and other hallmarks: An overview

A typical set of British hallmarks contains the marks about: 1-Marker, 2-Standard (purity) of the silver, 3-City, 4-Date and 5-Duty (tax paid on the items from 1785 to 1890). The hallmarks have traditionally been produced by striking. Over number of years Jaromir have been involved in reconstruction and restoration of historical artefacts for museums and governments.

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alloys were marked with lion passant, and Britannia (the figure of a woman), respectively. The images of lion passant and Britannia were situated in shields of different shapes depending on a particular period when they were used, as shown by key features pictured in Fig. 2.

The marker’s mark, 1, in combination with the standard (purity) mark, 2, were intended to prevent the misuse of lion mark or its forgery on items made of lower silver content alloys. The city hallmarks, 3, featured different symbols for different cities, namely, the head of leopard (London; crowned head from 1478 to 1822, and the uncrowned one since 1822); an anchor (Birmingham, since 1773); a crown (Sheffield; since 1773) and others for Chester, Exeter, Newcastle, Dublin, Edinburgh and Glasgow, not included in this paper but to be found easily in literatures [3–7]. The date mark, 4, is based on the letter system, the two distinguished features of which are the font letter case and the shape of the shield.

This combination helps to determine the year when the particular piece was presented to an assay office for testing the silver content. Different duty marks (or the mark 5) represented by one of the four sovereign’s heads were used from 1785 to 1890. They reassemble, in an ellipse, a particular
reigning monarch’s head, namely, George III from 1785/1786 to 1821, George IV from 1822 to 1833, William IV from 1834 to 1837, and finally Queen Victoria from 1838 to 1890. Images of the Kings’ heads are turned to the right, while the Queen’s head is turned to the left. After 1890 the duty mark was abolished. Marks on silver items considered in a thousandth indicate the silver purity, for instance, sterling 925 = 0.925 of 1 or 92.5%Ag. Items made of silver content alloys are of greater quality than the sterling. For example Mexican ones are usually marked as 980, 970, 960 and 940. Most Americans, Australians, Mexicans (silver items) are stamped with word ‘Sterling’. European silver have usually been marked with numbers (875, 830, 800, 700, 600, 500 etc.). These numbers may be used in combination with different symbols such as animal, bird or woman accompanied by a number in a reserve or cartouche. Some examples can be viewed via website [8]. They include, for example, an image of a dog with number 3 stamped on a Type 800 silver Austro-Hungarian item. Referring to the same source [8], France has apparently utilised the most complex hallmark system which contains diverse form of animals including their heads such as boar’s head for the Paris Assay Office. A crab image had been used from 1838 to 1961 for French Assay Offices other than the Paris one. Other symbols included people heads e.g. Minerva, birds and insects that varied according to fineness, place of manufacture including export and import. The knowledge about hallmarks, their characteristic features, shapes, positions, styles, forms and appearance coupled with a good observation skill are definitely very useful in making sound judgements about authenticity of an item to be purchased. Sometimes a large amount of money is exchanged for a “rare piece”, which latter can turn to be a more or less clever forgery leaving buyers in a very unfortunate position when trying to recover their money back from an auction house or a dealer. Although a number of art dealers state that they would return the money if the object is found to be not genuine but the recovery process is not a straight forward one. It is because a buyer has to prove that the object is a fake, forgery or contemporary one. With a number of fakes around, it is better to be wise than sorry.

The following section deals with some artefacts interesting from a collector point of view, namely candlesticks. The items analysed in this paper have been offered on, or purchased from recent Australian market. An additional interest was on rare and therefore highly collectable and equally expensive items produced by famous 18th century British silversmiths such as Ebenezer Coker and John Café. When looking for signs of authenticity, the major focus was on hallmarks and surface features. This is because the majority of ordinary collectors rely on their observation approach when making decision about purchasing an item of their desire. Rarity and quality are usually the factors influencing the desirability and value of an artefact.

2 Experimental candlesticks

A George II candlestick (one of a pair) by John Café, a George III candlestick (one of a pair) by Ebenezer Coker and one single Italian candelabrum from Fascist era were studied. Figure 3 shows photographs depicting two silver candlesticks supposedly made in England (in 1742 and 1763) during the region of King George II and George III. Figure 4 depicts a candelabrum produced in Italy during Fascist era (1934-1944). All the items pictured in Figs. 3 and 4 are highly desirable from a collector’s viewpoint. The candlesticks pictured in Fig.3 (a) and (c) have been offered for sale at a known antic shop in Melbourne (company name is not mentioned here for confidential reasons). The asking price was around $8,000 AUD (Australian Dollars) for each pair, individually. It is evident that the market price was considerably greater than that published in reference [9] (see Fig.3(b)). The Italian candelabrum shown in Fig. 4 was purchased in 2007 for $150 AUD from an antique centre at Capel Street in Melbourne. An antique dealer in Perth valued this piece at $800 AUD.

Fig. 3: Photographs showing an experimental candlestick from George II era by John Café, 1742 (a), recent valuation for a pair of Café’s candlesticks from 1788 (b) [9], and an experimental candlestick from George III era by Ebenezer Coker, 1763 (c)
Before attempting to analyse the experimental candlesticks via their hallmarks and surface quality, it was decided to show some examples of different hallmarked silver candlesticks. Figures 5 and 6 contain series of photographs depicting 20th century candlesticks produced in UK.

It is generally accepted that genuine sets of pairs of candlesticks are more valuable than singles (singles usually less than half) \[10\]. The sets of four (quadruple) or more items are very rare and attracting therefore an additional premium to the selling price \[11, 12\]. Some signs of authenticity are the hallmarks not identically positioned on the bases of a pair or a quadruple, and uneven surface wear via normal process of
using and ageing. Identical positions of hallmarks may indicate that one or more pieces were cast from the original. Dent marks, see Figs. 5(a) and (c) reduce value very drastically. The asking price was $500 AUD for the pair of candlesticks pictured in Figs. 5(a) and (b). If both these candlesticks were in condition similar to that shown in Figs. 5(b) and (d) this pair would have the fair price band of up to about $1000 AUD. Small candlesticks similar to those pictured in Fig. 6 were usually made as singles or in pairs. They were popular at the beginning of the 20th century because of their vital functions in providing light when writing letters and melting wax for sealing documents and envelopes. The price range is from about $50 to $150 AUD per a single item depending on a dealer and location. The major antique shops in main cities usually have greater price bands compared to antiques in smaller towns or villages. For example, a silver ink holder with a small candlestick and a calendar from the early 20th century in a polished wooden box, see Fig.7, had a price tag of $1,200 attached to it in an exquisite antique shop located in Perth city. In contrast a similar set was offered for a bargain price of $180 in one-man antique shop in minor Perth area. According to reference a single capstan-shape inkwell similar to that pictured in front of the candlestick in Fig. 7 is a popular collector item demanding a price ranging from $240 to $320.

3 Results and discussion:
macroscopical observations

Figure 8 depicts several details photographed from the base of the George II era candlestick (as shown in Fig. 3(a)).

From Fig. 8(a) it is evident that the base shows two distinguished features, namely, I and II after both casting and machining, respectively. Also, along the outside diameter of the machined surface there are four circles indicating the positions of hallmarks on the inside base of this candlestick. Figures 8(b) and (c) indicate a large level of porosity (see detail A), on the very rough surface (see details B and C). The surface follows features of the moulding mixture. The latter was apparently prepared from rather rough sand. This quite poor cast surface quality indicates absence of fine finish clay to improve the surface finish. Moreover, the internal surfaces of hallmarks are identical to the as cast base surface, comparing the circled detail 3 with detail C, in Fig. 8(b). This indicates that the hallmarks were produced by casting instead of striking. The overall quality of the hallmarks produced in this way is exceptionally poor and visible by naked eyes. Also, it needs to be noted that whoever carried out machining of the base, he or she took a care and stopped close to the hallmarks, see circled details 3 and 2 in Figs. 8 (b) and 8 (c), respectively. Finally, the machined surface appears to be quite smooth and symmetrical to be produced by tools and techniques available in the middle of the 18th century. Figure 9 shows, firstly, the details of faked ‘18th century’ hallmarks ((a) to (c)), secondly, the corresponding hallmarks adopted from literature [3], and thirdly, the original 18th century hallmarks photographed from a genuine artefact, for comparison purposes.

Figure 10 is a photograph of a hallmark set associated with the experimental George III era candlestick. The overall surface roughness is identical to that inside of the hallmarks, which indicates that they were produced by casting rather than striking. Their quality is poor, but not as bad as that
Fig. 10: Photographs showing the set of fake hallmarks on the “George III era” candlestick pictured earlier in Figure 1 (b) trying to convince one that the artefact was made by the silversmith Ebenezer Coker (E.C)

1 - Sterling silver;
2 - In London;
3 - In the year 1763;
4 - During the region of King George 3;
* - The surface features reproduced by casting

Fig. 11: The set of Italian silver hallmarks on the candelabra produced during fascist era

1 - Sterile silver;
2 - In London;
3 - In the year 1763;
4 - During the region of King George 3;
* - The surface features reproduced by casting

The candlestick holder (i.e. candelabrum) shown in Fig. 4 is a fine example of Italian silversmith’s work from mid-20th century. It has three identical silver hallmarks, see Fig. 11. They are placed on the bottom (a) and the base (b) of the holder, as well as on its removable part, the insert (c).

From Figs. 11(a) through (c) it is evident that each hallmark consists of three parts, namely, the marker’s insignia (left), the lozenge (middle) with ‘fascio/province’, and the purity of the silver alloy (right). The marker’s insignia is represented by the initials VM. The lozenge, pictured in detail (d), contains a number 119 and letters PM. The number is ‘fascio’ and its role is to identify the particular silversmith’s fascist party symbol. The letters in the lozenge are initials of the province. Finally, this item contains 80 percent of silver (purity degree 800/1000), represented by the 800 stamp. It deserves to be noted that the lozenge with ‘fascio’ was introduced in February 1934, and over 10 years, until its elimination in October 1944, this “symbol of fascism” was used as a compulsory additional silversmith’s mark on Italian silver [13]. Candelabrum, pictured in Fig. 4, is an original. Also, because of its date and manufacturing place it represents a popular collecting item.

4 Other interesting contemporary artefacts: examples of fake coins

The following examples in Fig. 12 were adopted from the most recent study Audy 2008 [14] to demonstrate diverse activities in forgery fields. Photographs pictured in details (a to h) depict the images of counterfeit coins imitating rare Spanish (a),
Hungarian (b, c), English (d), Russian (e, f) and Chinese (g, h) coins which circulated as a legal tender in the late 19th and the early 20th of centuries.

Recently more people are being now keen to get involved in coin collecting because the high quality coins showed reasonably steady price increase over the past decades. However, it needs to be mentioned that it requires certain knowledge and skills when buying coins as an investment. In addition, an increasing level of inflation all over the world, and devaluation of paper currencies in many European countries created a type of ‘collectors’ interested in basic silver and gold coins because of their value in metal weight. However, it is easy to get burnt, for example, by buying an over-graded coin (tragedy) or by purchasing a complete forgery (plain disaster).

Referring to Figure 12, the coins pictured in details (a to c) were very poorly struck as evident from their planchet and design features. Moreover, the coins (a and c) show distinctive marks of corrosion. The gold coin pictured in detail (d) was made by injection moulding instead of forging. It is interesting to note that in fact the real gold material used in production may sometimes be better than that used in official original issues as it is generally known, for instance, in a case of legal imitations (e.g. that pictured in d) made in Middle East (mostly Lebanon). In many cases such fakes are recognisable by some errors the forgers made when copying their dies (see circled detail). Completely different story is for example a crude reproduction of a Russian gold ruble featuring Tsar Nikolai (e). It is a low carbon steel material coated with a thin layer of TiN. Such copies are now being offered through e-bay for US$20 plus $6.65 for shipping cost from USA [15]. Finally, a Chinese coin pictured in detail (g) is made from low carbon steel covered with a marginal silver coat layer. Also these coins are available through the web-site as well as the auctions.

4 Conclusions

Silver artefacts attract interests of a wide range of collectors and investors. The most important ‘birthday certificate’ e.g. for an English silver artefact is a set of hallmarks indicating marker’s initials, purity of silver, city, date, and duty (tax) in older pieces. This article showed the knowledge about hallmarks, their characteristic features, shapes, positions, styles, forms and appearance coupled with a good observation skill are important when judging authenticity of an item even when purchasing it from recognised antique shops or ‘antique’ dealers. The value and desirability of silver items appear to increase with their quality, age, manufacturer and place. The prices for identical items vary in a wide range – source by source, place by place and dealer by dealer. Demand and high price of certain type artefacts (such as early candlesticks) attract a constant attention of forgers. It is because the symmetrical shapes of candlesticks allow them to be produced relatively easily by casting and polishing. The reward for such fakes is usually very generous. Some ‘ancient’ artefacts bearing features of contemporary items (as discussed in this paper) have been offered for sale at local Australian market (in a highly recognised antique shop) for $8000 AUD each per a pair of George II and George III candlesticks by John Café and Ebenezer Coker, respectively. These particular items including their hallmarks were produced by casting. Some examples in this paper have been shown, for comparison purposes, to document the characteristic features of real (original) hallmarks produced by metal punches. Finally, it needs to be noted that the market offers an incredible wide range of diverse fakes so the author recommends taking a special care when making decision about purchasing an item before large amount of money exchanges the hands. The process to recover the money is costly and time consuming. Discussion with diverse dealers (especially those dealing with contemporary ‘ancient’ artefacts) confirmed that it is the responsibility of a buyer to prove that the artefact is fake, not the dealer that the artefact is a genuine one. Consequently, do not get fooled by so called certificates of authenticity by so called ‘experts’, trust your instinct and knowledge, and if in doubt do not buy.
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